

## Patent Application US/07/938,990A

## SEQUENCE LISTING

## (1) GENERAL INFORMATION:

(i) APPLICANT: Griffith, Irwin J.  
Pollock, Joanne  
Bond Julian

(ii) TITLE OF INVENTION: Allergenic Proteins And Peptides From  
Japanese Cedar Pollen

(iii) NUMBER OF SEQUENCES: 70

## (iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: Lahive & Cockfield  
(B) STREET: Sixty State Street  
(C) CITY: Boston  
(D) STATE: MA  
(E) COUNTRY: USA  
(F) ZIP: 02109

## (v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Floppy disk  
(B) COMPUTER: IBM PC compatible  
(C) OPERATING SYSTEM: PC-DOS/MS-DOS  
(D) SOFTWARE: PatentIn Release #1.0, Version #1.25

## (vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER: 07/938,990  
(B) FILING DATE: September 1, 1992  
(C) CLASSIFICATION:

## (vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 07/730,452  
(B) FILING DATE: July 15, 1991

## (viii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 07/729,134  
(B) FILING DATE: July 10, 1991

## (ix) ATTORNEY/AGENT INFORMATION:

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(B) REGISTRATION NUMBER: 36,207  
(C) REFERENCE/DOCKET NUMBER: IPC-025CC (IMI-028)

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#K4

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67 (2) INFORMATION FOR SEQ ID NO:1:  
68  
69 (i) SEQUENCE CHARACTERISTICS:  
70 (A) LENGTH: 1337 base pairs  
71 (B) TYPE: nucleic acid  
72 (C) STRANDEDNESS: single  
73 (D) TOPOLOGY: linear  
74  
75 (ii) MOLECULE TYPE: cDNA to mRNA  
76  
77 (vi) ORIGINAL SOURCE:  
78 (A) ORGANISM: *Cryptomeria japonica*  
79  
80 (ix) FEATURE:  
81 (A) NAME/KEY: CDS  
82 (B) LOCATION: 66..1187  
83  
84 (ix) FEATURE:  
85 (A) NAME/KEY: mat\_peptide  
86 (B) LOCATION: 129..1187  
87  
88  
89 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:  
90  
91 AGTCAATCTG CTCATAATCA TAGCATAGCC GTATAGAAAG AAATTCTACA CTCTGCTACC 60  
92  
93 AAAAA ATG GAT TCC CCT TGC TTA GTA GCA TTA CTG GTT TTC TCT TTT 107  
94 Met Asp Ser Pro Cys Leu Val Ala Leu Leu Val Phe Ser Phe  
95 -21 -20 -15 -10  
96  
97 GTA ATT GGA TCT TGC TTT TCT GAT AAT CCC ATA GAC AGC TGC TGG AGA 155  
98 Val Ile Gly Ser Cys Phe Ser Asp Asn Pro Ile Asp Ser Cys Trp Arg  
99 -5 1 5  
100  
101 GGA GAC TCA AAC TGG GCC CAA AAT AGA ATG AAG CTC GCA GAT TGT GCA 203  
102 Gly Asp Ser Asn Trp Ala Gln Asn Arg Met Lys Leu Ala Asp Cys Ala  
103 10 15 20 25  
104

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105	GTG GGC TTC GGA AGC TCC ACC ATG GGA GGC AAG GGA GGA GAT CTT TAT	251
106	Val Gly Phe Gly Ser Ser Thr Met Gly Gly Lys Gly Gly Asp Leu Tyr	
107	30 35 40	
108		
109	ACG GTC ACG AAC TCA GAT GAC GAC CCT GTG AAT CCT GCA CCA GGA ACT	299
110	Thr Val Thr Asn Ser Asp Asp Asp Pro Val Asn Pro Ala Pro Gly Thr	
111	45 50 55	
112		
113	CTG CGC TAT GGA GCA ACC CGA GAT AGG CCC CTG TGG ATA ATT TTC AGT	347
114	Leu Arg Tyr Gly Ala Thr Arg Asp Arg Pro Leu Trp Ile Ile Phe Ser	
115	60 65 70	
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133	GGG AAT ATG AAT ATA AAG CTC AAA ATG CCT ATG TAC ATT GCT GGG TAT	395
134	Gly Asn Met Asn Ile Lys Leu Lys Met Pro Met Tyr Ile Ala Gly Tyr	
135	75 80 85	
136		
137	AAG ACT TTT GAT GGC AGG GGA GCA CAA GTT TAT ATT GGC AAT GGC GGT	443
138	Lys Thr Phe Asp Gly Arg Gly Ala Gln Val Tyr Ile Gly Asn Gly Gly	
139	90 95 100 105	
140		
141	CCC TGT GTG TTT ATC AAG AGA GTT AGC AAT GTT ATC ATA CAC GGT TTG	491
142	Pro Cys Val Phe Ile Lys Arg Val Ser Asn Val Ile Ile His Gly Leu	
143	110 115 120	
144		
145	TAT CTG TAC GGC TGT AGT ACT AGT GTT TTG GGG AAT GTT TTG ATA AAC	539
146	Tyr Leu Tyr Gly Cys Ser Thr Ser Val Leu Gly Asn Val Leu Ile Asn	
147	125 130 135	
148		
149	GAG AGT TTT GGG GTG GAG CCT GTT CAT CCT CAG GAT GGC GAT GCT CTT	587
150	Glu Ser Phe Gly Val Glu Pro Val His Pro Gln Asp Gly Asp Ala Leu	
151	140 145 150	
152		
153	ACT CTG CGC ACT GCT ACA AAT ATT TGG ATT GAT CAT AAT TCT TTC TCC	635
154	Thr Leu Arg Thr Ala Thr Asn Ile Trp Ile Asp His Asn Ser Phe Ser	
155	155 160 165	
156		

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157	AAT TCT TCT GAT GGT CTG GTC GAT GTC ACT CTT ACT TCG ACT GGA GTT	683
158	Asn Ser Ser Asp Gly Leu Val Asp Val Thr Leu Thr Ser Thr Gly Val	
159	170 175 180 185	
160		
161	ACT ATT TCA AAC AAT CTT TTT TTC AAC CAT CAT AAA GTG ATG TTG TTA	731
162	Thr Ile Ser Asn Asn Leu Phe Phe Asn His His Lys Val Met Leu Leu	
163	190 195 200	
164		
165	GGG CAT GAT GAT GCA TAT AGT GAT GAC AAA TCC ATG AAG GTG ACA GTG	779
166	Gly His Asp Asp Ala Tyr Ser Asp Asp Lys Ser Met Lys Val Thr Val	
167	205 210 215	
168		
169	GCG TTC AAT CAA TTT GGA CCT AAC TGT GGA CAA AGA ATG CCC AGG GCA	827
170	Ala Phe Asn Gln Phe Gly Pro Asn Cys Gly Gln Arg Met Pro Arg Ala	
171	220 225 230	
172		
173	CGA TAT GGA CTT GTA CAT GTT GCA AAC AAT AAT TAT GAC CCA TGG ACT	875
174	Arg Tyr Gly Leu Val His Val Ala Asn Asn Asn Tyr Asp Pro Trp Thr	
175	235 240 245	
176		
177	ATA TAT GCA ATT GGT GGG AGT TCA AAT CCA ACC ATT CTA AGT GAA GGG	923
178	Ile Tyr Ala Ile Gly Gly Ser Ser Asn Pro Thr Ile Leu Ser Glu Gly	
179	250 255 260 265	
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199	AAT AGT TTC ACT GCA CCA AAT GAG AGC TAC AAG AAG CAA GTA ACC ATA	971
200	Asn Ser Phe Thr Ala Pro Asn Glu Ser Tyr Lys Lys Gln Val Thr Ile	
201	270 275 280	
202		
203	CGT ATT GGA TGC AAA ACA TCA TCA TCT TGT TCA AAT TGG GTG TGG CAA	1019
204	Arg Ile Gly Cys Lys Thr Ser Ser Ser Cys Ser Asn Trp Val Trp Gln	
205	285 290 295	
206		
207	TCT ACA CAA GAT GTT TTT TAT AAT GGA GCT TAT TTT GTA TCA TCA GGG	1067
208	Ser Thr Gln Asp Val Phe Tyr Asn Gly Ala Tyr Phe Val Ser Ser Gly	

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209 300 305 310  
210  
211 AAA TAT GAA GGG GGT AAT ATA TAC ACA AAG AAA GAA GCT TTC AAT GTT 1115  
212 Lys Tyr Glu Gly Gly Asn Ile Tyr Thr Lys Lys Glu Ala Phe Asn Val  
213 315 320 325  
214  
215 GAG AAT GGG AAT GCA ACT CCT CAA TTG ACA AAA AAT GCT GGG GTT TTA 1163  
216 Glu Asn Gly Asn Ala Thr Pro Gln Leu Thr Lys Asn Ala Gly Val Leu  
217 330 335 340 345  
218  
219 ACA TGC TCT CTC TCT AAA CGT TGT TGATGATGCA TATATTCTAG CATGTTGTAC 1217  
220 Thr Cys Ser Leu Ser Lys Arg Cys  
221 350  
222  
223 TATCTAAATT AACATCAACA AGAAAATATA TCATGATGTA TATTGTTGTA TTGATGTCAA 1277  
224  
225 AATAAAAATG TATCTTTTAC TATTAAAAAA AAAAATGATC GATCGGACGG TACCTCTAGA 1337  
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229 (2) INFORMATION FOR SEQ ID NO:2:  
230  
231 (i) SEQUENCE CHARACTERISTICS:  
232 (A) LENGTH: 374 amino acids  
233 (B) TYPE: amino acid  
234 (D) TOPOLOGY: linear  
235  
236 (ii) MOLECULE TYPE: protein  
237  
238 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:  
239  
240 Met Asp Ser Pro Cys Leu Val Ala Leu Leu Val Phe Ser Phe Val Ile  
241 -21 -20 -15 -10  
242  
243 Gly Ser Cys Phe Ser Asp Asn Pro Ile Asp Ser Cys Trp Arg Gly Asp  
244 -5 1 5 10  
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246 Ser Asn Trp Ala Gln Asn Arg Met Lys Leu Ala Asp Cys Ala Val Gly  
247 15 20 25  
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265 Phe Gly Ser Ser Thr Met Gly Gly Lys Gly Gly Asp Leu Tyr Thr Val  
266 30 35 40  
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268 Thr Asn Ser Asp Asp Asp Pro Val Asn Pro Ala Pro Gly Thr Leu Arg  
269 45 50 55  
270  
271 Tyr Gly Ala Thr Arg Asp Arg Pro Leu Trp Ile Ile Phe Ser Gly Asn  
272 60 65 70 75  
273  
274 Met Asn Ile Lys Leu Lys Met Pro Met Tyr Ile Ala Gly Tyr Lys Thr  
275 80 85 90  
276  
277 Phe Asp Gly Arg Gly Ala Gln Val Tyr Ile Gly Asn Gly Gly Pro Cys  
278 95 100 105  
279  
280 Val Phe Ile Lys Arg Val Ser Asn Val Ile Ile His Gly Leu Tyr Leu  
281 110 115 120  
282  
283 Tyr Gly Cys Ser Thr Ser Val Leu Gly Asn Val Leu Ile Asn Glu Ser  
284 125 130 135  
285  
286 Phe Gly Val Glu Pro Val His Pro Gln Asp Gly Asp Ala Leu Thr Leu  
287 140 145 150 155  
288  
289 Arg Thr Ala Thr Asn Ile Trp Ile Asp His Asn Ser Phe Ser Asn Ser  
290 160 165 170  
291  
292 Ser Asp Gly Leu Val Asp Val Thr Leu Thr Ser Thr Gly Val Thr Ile  
293 175 180 185  
294  
295 Ser Asn Asn Leu Phe Phe Asn His His Lys Val Met Leu Leu Gly His  
296 190 195 200  
297  
298 Asp Asp Ala Tyr Ser Asp Asp Lys Ser Met Lys Val Thr Val Ala Phe  
299 205 210 215  
300  
301 Asn Gln Phe Gly Pro Asn Cys Gly Gln Arg Met Pro Arg Ala Arg Tyr  
302 220 225 230 235  
303  
304 Gly Leu Val His Val Ala Asn Asn Asn Tyr Asp Pro Trp Thr Ile Tyr  
305 240 245 250  
306  
307 Ala Ile Gly Gly Ser Ser Asn Pro Thr Ile Leu Ser Glu Gly Asn Ser  
308 255 260 265  
309  
310 Phe Thr Ala Pro Asn Glu Ser Tyr Lys Lys Gln Val Thr Ile Arg Ile  
311 270 275 280  
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313 Gly Cys Lys Thr Ser Ser Ser Cys Ser Asn Trp Val Trp Gln Ser Thr  
314 285 290 295  
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331 Gln Asp Val Phe Tyr Asn Gly Ala Tyr Phe Val Ser Ser Gly Lys Tyr  
332 300 305 310 315  
333  
334 Glu Gly Gly Asn Ile Tyr Thr Lys Lys Glu Ala Phe Asn Val Glu Asn  
335 320 325 330  
336  
337 Gly Asn Ala Thr Pro Gln Leu Thr Lys Asn Ala Gly Val Leu Thr Cys  
338 335 340 345  
339  
340 Ser Leu Ser Lys Arg Cys  
341 350  
342

## (2) INFORMATION FOR SEQ ID NO:3:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

GAYAAAYCCNA THGAYWS

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## (2) INFORMATION FOR SEQ ID NO:4:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

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366  
367 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:  
368  
369 GGGAATTCAA YTGGGCNCAR AAYSG 25  
370  
371 (2) INFORMATION FOR SEQ ID NO:5:  
372  
373 (i) SEQUENCE CHARACTERISTICS:  
374 (A) LENGTH: 23 base pairs  
375 (B) TYPE: nucleic acid  
376 (C) STRANDEDNESS: single  
377 (D) TOPOLOGY: linear  
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397 (ix) FEATURE:  
398 (A) NAME/KEY: modified\_base  
399 (B) LOCATION: 15  
400 (D) OTHER INFORMATION: /mod\_base= i  
401  
402  
403 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:  
404  
405 CTGCAGCCRT TYTCNACRTT RAA 23  
406  
407 (2) INFORMATION FOR SEQ ID NO:6:  
408  
409 (i) SEQUENCE CHARACTERISTICS:  
410 (A) LENGTH: 20 base pairs  
411 (B) TYPE: nucleic acid  
412 (C) STRANDEDNESS: single  
413 (D) TOPOLOGY: linear  
414  
415  
416 (ix) FEATURE:



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417 (A) NAME/KEY: modified\_base  
418 (B) LOCATION: 6  
419 (D) OTHER INFORMATION: /mod\_base= i  
420

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422 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:  
423

424 TTCATNCKRT TYTGNGCCCA

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425  
426 (2) INFORMATION FOR SEQ ID NO:7:  
427

428 (i) SEQUENCE CHARACTERISTICS:  
429 (A) LENGTH: 25 base pairs  
430 (B) TYPE: nucleic acid  
431 (C) STRANDEDNESS: single  
432 (D) TOPOLOGY: linear  
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436 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:  
437

438 CCTGCAGCKR TTYTGNGCCC AARTT

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439  
440 (2) INFORMATION FOR SEQ ID NO:8:  
441

442 (i) SEQUENCE CHARACTERISTICS:  
443 (A) LENGTH: 18 base pairs  
444 (B) TYPE: nucleic acid  
445 (C) STRANDEDNESS: single  
446 (D) TOPOLOGY: linear  
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463 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:  
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465 ATGGATTCCC CTTGCTTA

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467 (2) INFORMATION FOR SEQ ID NO:9:  
468

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469 (i) SEQUENCE CHARACTERISTICS:  
470 (A) LENGTH: 26 base pairs  
471 (B) TYPE: nucleic acid  
472 (C) STRANDEDNESS: single  
473 (D) TOPOLOGY: linear  
474  
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477 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:  
478

479 GGGGAATTCGA TAATCCCATA GACAGC  
480

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481 (2) INFORMATION FOR SEQ ID NO:10:  
482

483 (i) SEQUENCE CHARACTERISTICS:  
484 (A) LENGTH: 17 base pairs  
485 (B) TYPE: nucleic acid  
486 (C) STRANDEDNESS: single  
487 (D) TOPOLOGY: linear  
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491 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:  
492

493 ATGCCTATGT ACATTGC  
494

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495 (2) INFORMATION FOR SEQ ID NO:11:  
496

497 (i) SEQUENCE CHARACTERISTICS:  
498 (A) LENGTH: 17 base pairs  
499 (B) TYPE: nucleic acid  
500 (C) STRANDEDNESS: single  
501 (D) TOPOLOGY: linear  
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505 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:  
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507 GCAATGTACA TAGGCAT  
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529 (2) INFORMATION FOR SEQ ID NO:12:  
530  
531 (i) SEQUENCE CHARACTERISTICS:  
532 (A) LENGTH: 18 base pairs  
533 (B) TYPE: nucleic acid  
534 (C) STRANDEDNESS: single  
535 (D) TOPOLOGY: linear  
536  
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538  
539 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:  
540  
541 TCCAATTCTT CTGATGGT 18  
542  
543 (2) INFORMATION FOR SEQ ID NO:13:  
544  
545 (i) SEQUENCE CHARACTERISTICS:  
546 (A) LENGTH: 18 base pairs  
547 (B) TYPE: nucleic acid  
548 (C) STRANDEDNESS: single  
549 (D) TOPOLOGY: linear  
550  
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552  
553 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:  
554  
555 TTTTGTCAAT TGAGGAGT 18  
556  
557  
558 (2) INFORMATION FOR SEQ ID NO:14:  
559  
560 (i) SEQUENCE CHARACTERISTICS:  
561 (A) LENGTH: 30 base pairs  
562 (B) TYPE: nucleic acid  
563 (C) STRANDEDNESS: single  
564 (D) TOPOLOGY: linear  
565  
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567  
568 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:  
569  
570 CCTGCAGAAG CTTTCATCAAC AACGTTTAGA 30  
571  
572 (2) INFORMATION FOR SEQ ID NO:15:

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573  
574 (i) SEQUENCE CHARACTERISTICS:  
575 (A) LENGTH: 19 base pairs  
576 (B) TYPE: nucleic acid  
577 (C) STRANDEDNESS: single  
578 (D) TOPOLOGY: linear  
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595 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:  
596  
597 TAGCAACTCC AGTCGAAGT 19  
598  
599 (2) INFORMATION FOR SEQ ID NO:16:  
600  
601 (i) SEQUENCE CHARACTERISTICS:  
602 (A) LENGTH: 17 base pairs  
603 (B) TYPE: nucleic acid  
604 (C) STRANDEDNESS: single  
605 (D) TOPOLOGY: linear  
606  
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609 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:  
610  
611 TAGCTCTCAT TTGGTGC 17  
612  
613 (2) INFORMATION FOR SEQ ID NO:17:  
614  
615 (i) SEQUENCE CHARACTERISTICS:  
616 (A) LENGTH: 18 base pairs  
617 (B) TYPE: nucleic acid  
618 (C) STRANDEDNESS: single  
619 (D) TOPOLOGY: linear  
620  
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623 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:  
624

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625 TATGCAATTG GTGGGAGT 18  
626  
627 (2) INFORMATION FOR SEQ ID NO:18:  
628  
629 (i) SEQUENCE CHARACTERISTICS:  
630 (A) LENGTH: 20 amino acids  
631 (B) TYPE: amino acid  
632 (D) TOPOLOGY: linear  
633  
634 (ii) MOLECULE TYPE: peptide  
635  
636 (v) FRAGMENT TYPE: N-terminal  
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638 (vi) ORIGINAL SOURCE:  
639 (A) ORGANISM: *Cryptomeria japonica*  
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661 (ix) FEATURE:  
662 (A) NAME/KEY: Modified-site  
663 (B) LOCATION: 7  
664 (D) OTHER INFORMATION: /note= "the amino acid at position  
665 7 is Ser, Cys, Thr, or His"  
666  
667  
668 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:  
669  
670 Asp Asn Pro Ile Asp Ser Xaa Trp Arg Gly Asp Ser Asn Trp Ala Gln  
671 1 5 10 15  
672  
673 Asn Arg Met Lys  
674 20  
675  
676 (2) INFORMATION FOR SEQ ID NO:19:

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677  
678 (i) SEQUENCE CHARACTERISTICS:  
679 (A) LENGTH: 16 amino acids  
680 (B) TYPE: amino acid  
681 (D) TOPOLOGY: linear  
682  
683 (ii) MOLECULE TYPE: peptide  
684  
685 (v) FRAGMENT TYPE: internal  
686  
687 (vi) ORIGINAL SOURCE:  
688 (A) ORGANISM: *Cryptomeria japonica*  
689  
690  
691 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:  
692  
693 Glu Ala Phe Asn Val Glu Asn Gly Asn Ala Thr Pro Gln Leu Thr Lys  
694 1 5 10 15  
695  
696

## 697 (2) INFORMATION FOR SEQ ID NO:20:

698  
699 (i) SEQUENCE CHARACTERISTICS:  
700 (A) LENGTH: 30 base pairs  
701 (B) TYPE: nucleic acid  
702 (C) STRANDEDNESS: single  
703 (D) TOPOLOGY: linear  
704  
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## 707 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

708  
709 GGGTCTAGAG GTACCGTCCG ATCGATCATT  
710  
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## 727 (2) INFORMATION FOR SEQ ID NO:21:

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729 (i) SEQUENCE CHARACTERISTICS:  
730 (A) LENGTH: 20 base pairs  
731 (B) TYPE: nucleic acid  
732 (C) STRANDEDNESS: single  
733 (D) TOPOLOGY: linear  
734  
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737 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:  
738  
739 GGGTCTAGAG GTACCGTCCG 20  
740  
741 (2) INFORMATION FOR SEQ ID NO:22:  
742  
743 (i) SEQUENCE CHARACTERISTICS:  
744 (A) LENGTH: 13 base pairs  
745 (B) TYPE: nucleic acid  
746 (C) STRANDEDNESS: single  
747 (D) TOPOLOGY: linear  
748  
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751 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:  
752  
753 AATGATCGAT GCT 13  
754  
755 (2) INFORMATION FOR SEQ ID NO:23:  
756  
757 (i) SEQUENCE CHARACTERISTICS:  
758 (A) LENGTH: 21 base pairs  
759 (B) TYPE: nucleic acid  
760 (C) STRANDEDNESS: single  
761 (D) TOPOLOGY: linear  
762  
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764  
765 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:  
766  
767 GGAATTCTCT AGACTGCAGG T 21  
768  
769 (2) INFORMATION FOR SEQ ID NO:24:  
770  
771 (i) SEQUENCE CHARACTERISTICS:  
772 (A) LENGTH: 35 base pairs  
773 (B) TYPE: nucleic acid  
774 (C) STRANDEDNESS: single  
775 (D) TOPOLOGY: linear  
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793 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:  
794  
795 GGAATTCTCT AGACTGCAGG TTTTTTTTTT TTTT 35  
796  
797 (2) INFORMATION FOR SEQ ID NO:25:  
798  
799 (i) SEQUENCE CHARACTERISTICS:  
800 (A) LENGTH: 5 amino acids  
801 (B) TYPE: amino acid  
802 (D) TOPOLOGY: linear  
803  
804 (ii) MOLECULE TYPE: peptide  
805  
806 (v) FRAGMENT TYPE: N-terminal  
807  
808 (vi) ORIGINAL SOURCE:  
809 (A) ORGANISM: Juniperus sabinoides  
810  
811  
812 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:  
813  
814 Asp Asn Pro Ile Asp  
815 1 5  
816  
817  
818  
819 (2) INFORMATION FOR SEQ ID NO:26:  
820  
821 (i) SEQUENCE CHARACTERISTICS:  
822 (A) LENGTH: 20 amino acids  
823 (B) TYPE: amino acid  
824 (D) TOPOLOGY: linear  
825  
826 (ii) MOLECULE TYPE: peptide  
827  
828 (v) FRAGMENT TYPE: internal  
829  
830  
831  
832 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:



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833  
834 Asp Asn Pro Ile Asp Ser Cys Trp Arg Gly Asp Ser Asn Trp Ala Gln  
835 1 5 10 15

836  
837 Asn Arg Met Lys  
838 20  
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## 859 (2) INFORMATION FOR SEQ ID NO:27:

860  
861 (i) SEQUENCE CHARACTERISTICS:  
862 (A) LENGTH: 20 amino acids  
863 (B) TYPE: amino acid  
864 (D) TOPOLOGY: linear  
865

866 (ii) MOLECULE TYPE: peptide  
867

868 (v) FRAGMENT TYPE: internal  
869  
870  
871

## 872 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

873  
874 Asp Ser Asn Trp Ala Gln Asn Arg Met Lys Leu Ala Asp Cys Ala Val  
875 1 5 10 15

876  
877 Gly Phe Gly Ser  
878 20  
879

## 880 (2) INFORMATION FOR SEQ ID NO:28:

881  
882 (i) SEQUENCE CHARACTERISTICS:  
883 (A) LENGTH: 20 amino acids  
884 (B) TYPE: amino acid

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885 (D) TOPOLOGY: linear  
886  
887 (ii) MOLECULE TYPE: peptide  
888  
889 (v) FRAGMENT TYPE: internal  
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891  
892  
893 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:  
894  
895 Leu Ala Asp Cys Ala Val Gly Phe Gly Ser Ser Thr Met Gly Gly Lys  
896 1 5 10 15  
897  
898 Gly Gly Asp Leu  
899 20  
900  
901 (2) INFORMATION FOR SEQ ID NO:29:  
902  
903 (i) SEQUENCE CHARACTERISTICS:  
904 (A) LENGTH: 20 amino acids  
905 (B) TYPE: amino acid  
906 (D) TOPOLOGY: linear  
907  
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925 (ii) MOLECULE TYPE: peptide  
926  
927 (v) FRAGMENT TYPE: internal  
928  
929  
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931 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:  
932  
933 Ser Thr Met Gly Gly Lys Gly Gly Asp Leu Tyr Thr Val Thr Asn Ser  
934 1 5 10 15  
935  
936 Asp Asp Asp Pro

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937 20  
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939 (2) INFORMATION FOR SEQ ID NO:30:  
940  
941 (i) SEQUENCE CHARACTERISTICS:  
942 (A) LENGTH: 20 amino acids  
943 (B) TYPE: amino acid  
944 (D) TOPOLOGY: linear  
945  
946 (ii) MOLECULE TYPE: peptide  
947  
948 (v) FRAGMENT TYPE: internal  
949  
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951  
952 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:  
953  
954 Tyr Thr Val Thr Asn Ser Asp Asp Asp Pro Val Asn Pro Ala Pro Gly  
955 1 5 10 15  
956  
957 Thr Leu Arg Tyr  
958 20  
959  
960 (2) INFORMATION FOR SEQ ID NO:31:  
961  
962 (i) SEQUENCE CHARACTERISTICS:  
963 (A) LENGTH: 20 amino acids  
964 (B) TYPE: amino acid  
965 (D) TOPOLOGY: linear  
966  
967 (ii) MOLECULE TYPE: peptide  
968  
969 (v) FRAGMENT TYPE: internal  
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991 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:  
992  
993 Val Asn Pro Ala Pro Gly Thr Leu Arg Tyr Gly Ala Thr Arg Asp Arg  
994 1 5 10 15  
995  
996 Pro Leu Trp Ile  
997 20  
998  
999 (2) INFORMATION FOR SEQ ID NO:32:  
1000  
1001 (i) SEQUENCE CHARACTERISTICS:  
1002 (A) LENGTH: 20 amino acids  
1003 (B) TYPE: amino acid  
1004 (D) TOPOLOGY: linear  
1005  
1006 (ii) MOLECULE TYPE: peptide  
1007  
1008 (v) FRAGMENT TYPE: internal  
1009  
1010  
1011 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:  
1012  
1013 Gly Ala Thr Arg Asp Arg Pro Leu Trp Ile Ile Phe Ser Gly Asn Met  
1014 1 5 10 15  
1015  
1016 Asn Ile Lys Leu  
1017 20  
1018  
1019 (2) INFORMATION FOR SEQ ID NO:33:  
1020  
1021 (i) SEQUENCE CHARACTERISTICS:  
1022 (A) LENGTH: 20 amino acids  
1023 (B) TYPE: amino acid  
1024 (D) TOPOLOGY: linear  
1025  
1026 (ii) MOLECULE TYPE: peptide  
1027  
1028 (v) FRAGMENT TYPE: internal  
1029  
1030  
1031  
1032 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:  
1033  
1034 Ile Phe Ser Gly Asn Met Asn Ile Lys Leu Lys Met Pro Met Tyr Ile  
1035 1 5 10 15  
1036  
1037 Ala Gly Tyr Lys  
1038 20  
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## (2) INFORMATION FOR SEQ ID NO:34:

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## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (v) FRAGMENT TYPE: internal

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

Lys	Met	Pro	Met	Tyr	Ile	Ala	Gly	Tyr	Lys	Thr	Phe	Asp	Gly	Arg	Gly
1				5				10					15		
Ala Gln Val Tyr															
20															

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1078 (2) INFORMATION FOR SEQ ID NO:35:1079  
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1092

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (v) FRAGMENT TYPE: internal

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

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1093 Thr Phe Asp Gly Arg Gly Ala Gln Val Tyr Ile Gly Asn Gly Gly Pro  
1094 1 5 10 15

1095  
1096 Cys Val Phe Ile  
1097 20  
1098

1099 (2) INFORMATION FOR SEQ ID NO:36:

1100  
1101 (i) SEQUENCE CHARACTERISTICS:  
1102 (A) LENGTH: 20 amino acids  
1103 (B) TYPE: amino acid  
1104 (D) TOPOLOGY: linear  
1105  
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1123 (ii) MOLECULE TYPE: peptide

1124  
1125 (v) FRAGMENT TYPE: internal  
1126  
1127  
1128

1129 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

1130  
1131 Ile Gly Asn Gly Gly Pro Cys Val Phe Ile Lys Arg Val Ser Asn Val  
1132 1 5 10 15

1133  
1134 Ile Ile His Gly  
1135 20  
1136

1137 (2) INFORMATION FOR SEQ ID NO:37:

1138  
1139 (i) SEQUENCE CHARACTERISTICS:  
1140 (A) LENGTH: 20 amino acids  
1141 (B) TYPE: amino acid  
1142 (D) TOPOLOGY: linear  
1143

1144 (ii) MOLECULE TYPE: peptide

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1145  
1146 (v) FRAGMENT TYPE: internal  
1147  
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1150 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:  
1151  
1152 Lys Arg Val Ser Asn Val Ile Ile His Gly Leu Tyr Leu Tyr Gly Cys  
1153 1 5 10 15  
1154  
1155 Ser Thr Ser Val  
1156 20  
1157  
1158 (2) INFORMATION FOR SEQ ID NO:38:  
1159  
1160 (i) SEQUENCE CHARACTERISTICS:  
1161 (A) LENGTH: 20 amino acids  
1162 (B) TYPE: amino acid  
1163 (D) TOPOLOGY: linear  
1164  
1165 (ii) MOLECULE TYPE: peptide  
1166  
1167 (v) FRAGMENT TYPE: internal  
1168  
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1189 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:  
1190  
1191 Leu Tyr Leu Tyr Gly Cys Ser Thr Ser Val Leu Gly Asn Val Leu Ile  
1192 1 5 10 15  
1193  
1194 Asn Glu Ser Phe  
1195 20  
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1197 (2) INFORMATION FOR SEQ ID NO:39:

1198

1199 (i) SEQUENCE CHARACTERISTICS:

1200 (A) LENGTH: 20 amino acids

1201 (B) TYPE: amino acid

1202 (D) TOPOLOGY: linear

1203

1204 (ii) MOLECULE TYPE: peptide

1205

1206 (v) FRAGMENT TYPE: internal

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1210 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

1211

1212 Leu Gly Asn Val Leu Ile Asn Glu Ser Phe Gly Val Glu Pro Val His

1213 1 5 10 15

1214

1215 Pro Gln Asp Gly

1216 20

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1218 (2) INFORMATION FOR SEQ ID NO:40:

1219

1220 (i) SEQUENCE CHARACTERISTICS:

1221 (A) LENGTH: 20 amino acids

1222 (B) TYPE: amino acid

1223 (D) TOPOLOGY: linear

1224

1225 (ii) MOLECULE TYPE: peptide

1226

1227 (v) FRAGMENT TYPE: internal

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1231 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

1232

1233 Gly Val Glu Pro Val His Pro Gln Asp Gly Asp Ala Leu Thr Leu Arg

1234 1 5 10 15

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1236 Thr Ala Thr Asn

1237 20

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1255 (2) INFORMATION FOR SEQ ID NO:41:

1256

1257 (i) SEQUENCE CHARACTERISTICS:

1258 (A) LENGTH: 20 amino acids

1259 (B) TYPE: amino acid

1260 (D) TOPOLOGY: linear

1261

1262 (ii) MOLECULE TYPE: peptide

1263

1264 (v) FRAGMENT TYPE: internal

1265

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1268 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

1269

1270 Asp Ala Leu Thr Leu Arg Thr Ala Thr Asn Ile Trp Ile Asp His Asn

1271 1 5 10 15

1272

1273 Ser Phe Ser Asn

1274 20

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1276 (2) INFORMATION FOR SEQ ID NO:42:

1277

1278 (i) SEQUENCE CHARACTERISTICS:

1279 (A) LENGTH: 20 amino acids

1280 (B) TYPE: amino acid

1281 (D) TOPOLOGY: linear

1282

1283 (ii) MOLECULE TYPE: peptide

1284

1285 (v) FRAGMENT TYPE: internal

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1289 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

1290

1291 Ile Trp Ile Asp His Asn Ser Phe Ser Asn Ser Ser Asp Gly Leu Val

1292 1 5 10 15

1293

1294 Asp Val Thr Leu

1295 20

1296

1297 (2) INFORMATION FOR SEQ ID NO:43:

1298

1299 (i) SEQUENCE CHARACTERISTICS:

1300 (A) LENGTH: 20 amino acids

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1301 (B) TYPE: amino acid  
1302 (D) TOPOLOGY: linear  
1303  
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1321 (ii) MOLECULE TYPE: peptide  
1322

1323 (v) FRAGMENT TYPE: internal  
1324  
1325  
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1327 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:  
1328

Ser	Ser	Asp	Gly	Leu	Val	Asp	Val	Thr	Leu	Thr	Ser	Thr	Gly	Val	Thr
1				5				10					15		

1331  
1332 Ile Ser Asn Asn  
1333 20  
1334

1335 (2) INFORMATION FOR SEQ ID NO:44:  
1336

1337 (i) SEQUENCE CHARACTERISTICS:  
1338 (A) LENGTH: 20 amino acids  
1339 (B) TYPE: amino acid  
1340 (D) TOPOLOGY: linear  
1341

1342 (ii) MOLECULE TYPE: peptide  
1343

1344 (v) FRAGMENT TYPE: internal  
1345  
1346  
1347

1348 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:  
1349

Thr	Ser	Thr	Gly	Val	Thr	Ile	Ser	Asn	Asn	Leu	Phe	Phe	Asn	His	His
1				5				10					15		

1351  
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1353 Lys Val Met Leu  
1354 20  
1355

## 1356 (2) INFORMATION FOR SEQ ID NO:45:

1357

## 1358 (i) SEQUENCE CHARACTERISTICS:

1359 (A) LENGTH: 20 amino acids

1360 (B) TYPE: amino acid

1361 (D) TOPOLOGY: linear

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1363 (ii) MOLECULE TYPE: peptide

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1365 (v) FRAGMENT TYPE: internal

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## 1387 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

1388

1389 Leu Phe Phe Asn His His Lys Val Met Leu Leu Gly His Asp Asp Ala

1390 1 5 10 15

1391

1392 Tyr Ser Asp Asp

1393 20

1394

## 1395 (2) INFORMATION FOR SEQ ID NO:46:

1396

## 1397 (i) SEQUENCE CHARACTERISTICS:

1398 (A) LENGTH: 20 amino acids

1399 (B) TYPE: amino acid

1400 (D) TOPOLOGY: linear

1401

1402 (ii) MOLECULE TYPE: peptide

1403

1404 (v) FRAGMENT TYPE: internal

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1405  
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1407  
1408 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:  
1409  
1410 Leu Gly His Asp Asp Ala Tyr Ser Asp Asp Lys Ser Met Lys Val Thr  
1411 1 5 10 15  
1412  
1413 Val Ala Phe Asn  
1414 20  
1415  
1416 (2) INFORMATION FOR SEQ ID NO:47:  
1417  
1418 (i) SEQUENCE CHARACTERISTICS:  
1419 (A) LENGTH: 20 amino acids  
1420 (B) TYPE: amino acid  
1421 (D) TOPOLOGY: linear  
1422  
1423 (ii) MOLECULE TYPE: peptide  
1424  
1425 (v) FRAGMENT TYPE: internal  
1426  
1427  
1428  
1429 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:  
1430  
1431 Lys Ser Met Lys Val Thr Val Ala Phe Asn Gln Phe Gly Pro Asn Cys  
1432 1 5 10 15  
1433  
1434 Gly Gln Arg Met  
1435 20  
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1453 (2) INFORMATION FOR SEQ ID NO:48:  
1454  
1455 (i) SEQUENCE CHARACTERISTICS:  
1456 (A) LENGTH: 20 amino acids

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1457 (B) TYPE: amino acid  
1458 (D) TOPOLOGY: linear  
1459  
1460 (ii) MOLECULE TYPE: peptide  
1461  
1462 (v) FRAGMENT TYPE: internal  
1463  
1464  
1465  
1466 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:  
1467  
1468 Gln Phe Gly Pro Asn Cys Gly Gln Arg Met Pro Arg Ala Arg Tyr Gly  
1469 1 5 10 15  
1470  
1471 Leu Val His Val  
1472 20  
1473  
1474 (2) INFORMATION FOR SEQ ID NO:49:  
1475  
1476 (i) SEQUENCE CHARACTERISTICS:  
1477 (A) LENGTH: 20 amino acids  
1478 (B) TYPE: amino acid  
1479 (D) TOPOLOGY: linear  
1480  
1481 (ii) MOLECULE TYPE: peptide  
1482  
1483 (v) FRAGMENT TYPE: internal  
1484  
1485  
1486  
1487 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:  
1488  
1489 Pro Arg Ala Arg Tyr Gly Leu Val His Val Ala Asn Asn Asn Tyr Asp  
1490 1 5 10 15  
1491  
1492 Pro Trp Thr Ile  
1493 20  
1494  
1495 (2) INFORMATION FOR SEQ ID NO:50:  
1496  
1497 (i) SEQUENCE CHARACTERISTICS:  
1498 (A) LENGTH: 20 amino acids  
1499 (B) TYPE: amino acid  
1500 (D) TOPOLOGY: linear  
1501  
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1519 (ii) MOLECULE TYPE: peptide  
1520  
1521 (v) FRAGMENT TYPE: internal  
1522  
1523  
1524  
1525 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:  
1526  
1527 Ala Asn Asn Asn Tyr Asp Pro Trp Thr Ile Tyr Ala Ile Gly Gly Ser  
1528 1 5 10 15  
1529  
1530 Ser Asn Pro Thr  
1531 20  
1532  
1533 (2) INFORMATION FOR SEQ ID NO:51:  
1534  
1535 (i) SEQUENCE CHARACTERISTICS:  
1536 (A) LENGTH: 20 amino acids  
1537 (B) TYPE: amino acid  
1538 (D) TOPOLOGY: linear  
1539  
1540 (ii) MOLECULE TYPE: peptide  
1541  
1542 (v) FRAGMENT TYPE: internal  
1543  
1544  
1545  
1546 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:  
1547  
1548 Tyr Ala Ile Gly Gly Ser Ser Asn Pro Thr Ile Leu Ser Glu Gly Asn  
1549 1 5 10 15  
1550  
1551 Ser Phe Thr Ala  
1552 20  
1553  
1554 (2) INFORMATION FOR SEQ ID NO:52:  
1555  
1556 (i) SEQUENCE CHARACTERISTICS:  
1557 (A) LENGTH: 20 amino acids  
1558 (B) TYPE: amino acid  
1559 (D) TOPOLOGY: linear  
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1561 (ii) MOLECULE TYPE: peptide

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1563 (v) FRAGMENT TYPE: internal

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1585 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:

1586

1587 Ile Leu Ser Glu Gly Asn Ser Phe Thr Ala Pro Asn Glu Ser Tyr Lys

1588 1 5 10 15

1589

1590 Lys Gln Val Thr

1591 20

1592

1593 (2) INFORMATION FOR SEQ ID NO:53:

1594

1595 (i) SEQUENCE CHARACTERISTICS:

1596 (A) LENGTH: 20 amino acids

1597 (B) TYPE: amino acid

1598 (D) TOPOLOGY: linear

1599

1600 (ii) MOLECULE TYPE: peptide

1601

1602 (v) FRAGMENT TYPE: internal

1603

1604

1605 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

1606

1607 Pro Asn Glu Ser Tyr Lys Lys Gln Val Thr Ile Arg Ile Gly Cys Lys

1608 1 5 10 15

1609

1610 Thr Ser Ser Ser

1611 20

1612

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1613 (2) INFORMATION FOR SEQ ID NO:54:

1614

1615 (i) SEQUENCE CHARACTERISTICS:

1616 (A) LENGTH: 20 amino acids

1617 (B) TYPE: amino acid

1618 (D) TOPOLOGY: linear

1619

1620 (ii) MOLECULE TYPE: peptide

1621

1622 (v) FRAGMENT TYPE: internal

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1626 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:

1627

1628 Ile Arg Ile Gly Cys Lys Thr Ser Ser Ser Cys Ser Asn Trp Val Trp

1629 1 5 10 15

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1631 Gln Ser Thr Gln

1632 20

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1651 (2) INFORMATION FOR SEQ ID NO:55:

1652

1653 (i) SEQUENCE CHARACTERISTICS:

1654 (A) LENGTH: 20 amino acids

1655 (B) TYPE: amino acid

1656 (D) TOPOLOGY: linear

1657

1658 (ii) MOLECULE TYPE: peptide

1659

1660 (v) FRAGMENT TYPE: internal

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1664 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:



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1665  
1666 Cys Ser Asn Trp Val Trp Gln Ser Thr Gln Asp Val Phe Tyr Asn Gly  
1667 1 5 10 15  
1668  
1669 Ala Tyr Phe Val  
1670 20  
1671  
1672 (2) INFORMATION FOR SEQ ID NO:56:  
1673  
1674 (i) SEQUENCE CHARACTERISTICS:  
1675 (A) LENGTH: 20 amino acids  
1676 (B) TYPE: amino acid  
1677 (D) TOPOLOGY: linear  
1678  
1679 (ii) MOLECULE TYPE: peptide  
1680  
1681 (v) FRAGMENT TYPE: internal  
1682  
1683  
1684  
1685 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:  
1686  
1687 Asp Val Phe Tyr Asn Gly Ala Tyr Phe Val Ser Ser Gly Lys Tyr Glu  
1688 1 5 10 15  
1689  
1690 Gly Gly Asn Ile  
1691 20  
1692  
1693 (2) INFORMATION FOR SEQ ID NO:57:  
1694  
1695 (i) SEQUENCE CHARACTERISTICS:  
1696 (A) LENGTH: 20 amino acids  
1697 (B) TYPE: amino acid  
1698 (D) TOPOLOGY: linear  
1699  
1700  
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1717 (ii) MOLECULE TYPE: peptide  
1718  
1719 (v) FRAGMENT TYPE: internal  
1720  
1721  
1722  
1723 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:  
1724  
1725 Ser Ser Gly Lys Tyr Glu Gly Gly Asn Ile Tyr Thr Lys Lys Glu Ala  
1726 1 5 10 15  
1727  
1728 Phe Asn Val Glu  
1729 20  
1730  
1731 (2) INFORMATION FOR SEQ ID NO:58:  
1732  
1733 (i) SEQUENCE CHARACTERISTICS:  
1734 (A) LENGTH: 20 amino acids  
1735 (B) TYPE: amino acid  
1736 (D) TOPOLOGY: linear  
1737  
1738 (ii) MOLECULE TYPE: peptide  
1739  
1740 (v) FRAGMENT TYPE: internal  
1741  
1742  
1743  
1744 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:  
1745  
1746 Tyr Thr Lys Lys Glu Ala Phe Asn Val Glu Asn Gly Asn Ala Thr Pro  
1747 1 5 10 15  
1748  
1749 Gln Leu Thr Lys  
1750 20  
1751  
1752 (2) INFORMATION FOR SEQ ID NO:59:  
1753  
1754 (i) SEQUENCE CHARACTERISTICS:  
1755 (A) LENGTH: 20 amino acids  
1756 (B) TYPE: amino acid  
1757 (D) TOPOLOGY: linear  
1758  
1759 (ii) MOLECULE TYPE: peptide  
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1761 (v) FRAGMENT TYPE: internal  
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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:

1783  
1784  
1785 Asn Gly Asn Ala Thr Pro Gln Leu Thr Lys Asn Ala Gly Val Leu Thr  
1786 1 5 10 15  
1787  
1788 Cys Ser Leu Ser  
1789 20  
1790

(2) INFORMATION FOR SEQ ID NO:60:

1791  
1792

(i) SEQUENCE CHARACTERISTICS:

1793 (A) LENGTH: 13 amino acids  
1794 (B) TYPE: amino acid  
1795 (D) TOPOLOGY: linear  
1796  
1797

(ii) MOLECULE TYPE: peptide

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(v) FRAGMENT TYPE: internal

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:

1805

1806 Asn Ala Gly Val Leu Thr Cys Ser Leu Ser Lys Arg Cys  
1807 1 5 10  
1808

(2) INFORMATION FOR SEQ ID NO:61:

1809  
1810

(i) SEQUENCE CHARACTERISTICS:

1811 (A) LENGTH: 60 amino acids  
1812 (B) TYPE: amino acid  
1813 (D) TOPOLOGY: linear  
1814  
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(ii) MOLECULE TYPE: peptide

1816  
1817

(v) FRAGMENT TYPE: internal

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1821  
1822 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:  
1823  
1824 Asp Asn Pro Ile Asp Ser Cys Trp Arg Gly Asp Ser Asn Trp Ala Gln  
1825 1 5 10 15  
1826  
1827 Asn Arg Met Lys Asp Ser Asn Trp Ala Gln Asn Arg Met Lys Leu Ala  
1828 20 25 30  
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1848  
1849 Asp Cys Ala Val Gly Phe Gly Ser Ser Thr Met Gly Gly Lys Gly Gly  
1850 35 40 45  
1851  
1852 Asp Leu Tyr Thr Val Thr Asn Ser Asp Asp Asp Pro  
1853 50 55 60  
1854  
1855 (2) INFORMATION FOR SEQ ID NO:62:  
1856  
1857 (i) SEQUENCE CHARACTERISTICS:  
1858 (A) LENGTH: 60 amino acids  
1859 (B) TYPE: amino acid  
1860 (D) TOPOLOGY: linear  
1861  
1862 (ii) MOLECULE TYPE: peptide  
1863  
1864 (v) FRAGMENT TYPE: internal  
1865  
1866  
1867  
1868 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:  
1869  
1870 Gly Ala Thr Arg Asp Arg Pro Leu Trp Ile Ile Phe Ser Gly Asn Met  
1871 1 5 10 15  
1872

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1873 Asn Ile Lys Leu Lys Met Pro Met Tyr Ile Ala Gly Tyr Lys Thr Phe  
1874                   20                   25                   30  
1875  
1876 Asp Gly Arg Gly Ala Gln Val Tyr Ile Gly Asn Gly Gly Pro Cys Val  
1877                   35                   40                   45  
1878  
1879 Phe Ile Lys Arg Val Ser Asn Val Ile Ile His Gly  
1880           50                   55                   60  
1881

## 1882 (2) INFORMATION FOR SEQ ID NO:63:

1883

## 1884 (i) SEQUENCE CHARACTERISTICS:

1885 (A) LENGTH: 50 amino acids

1886 (B) TYPE: amino acid

1887 (D) TOPOLOGY: linear

1888

1889 (ii) MOLECULE TYPE: peptide

1890

1891 (v) FRAGMENT TYPE: internal

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## 1895 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:

1896

1897 Leu Gly Asn Val Leu Ile Asn Glu Ser Phe Gly Val Glu Pro Val His  
1898   1                   5                   10                   15  
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1915 Pro Gln Asp Gly Asp Ala Leu Thr Leu Arg Thr Ala Thr Asn Ile Trp  
1916                   20                   25                   30  
1917

1918 Ile Asp His Asn Ser Phe Ser Asn Ser Ser Asp Gly Leu Val Asp Val  
1919           35                   40                   45  
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1925  
1926 (i) SEQUENCE CHARACTERISTICS:  
1927 (A) LENGTH: 90 amino acids  
1928 (B) TYPE: amino acid  
1929 (D) TOPOLOGY: linear  
1930  
1931 (ii) MOLECULE TYPE: peptide  
1932  
1933 (v) FRAGMENT TYPE: internal  
1934  
1935  
1936  
1937 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:  
1938  
1939 Leu Phe Phe Asn His His Lys Val Met Leu Leu Gly His Asp Asp Ala  
1940 1 5 10 15  
1941  
1942 Tyr Ser Asp Asp Lys Ser Met Lys Val Thr Val Ala Phe Asn Gln Phe  
1943 20 25 30  
1944  
1945 Gly Pro Asn Cys Gly Gln Arg Met Pro Arg Ala Arg Tyr Gly Leu Val  
1946 35 40 45  
1947  
1948 His Val Ala Asn Asn Asn Tyr Asp Pro Trp Thr Ile Tyr Ala Ile Gly  
1949 50 55 60  
1950  
1951 Gly Ser Ser Asn Pro Thr Ile Leu Ser Glu Gly Asn Ser Phe Thr Ala  
1952 65 70 75 80  
1953  
1954 Pro Asn Glu Ser Tyr Lys Lys Gln Val Thr  
1955 85 90  
1956  
1957 (2) INFORMATION FOR SEQ ID NO:65:  
1958  
1959 (i) SEQUENCE CHARACTERISTICS:  
1960 (A) LENGTH: 63 amino acids  
1961 (B) TYPE: amino acid  
1962 (D) TOPOLOGY: linear  
1963  
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1981 (ii) MOLECULE TYPE: peptide  
1982  
1983 (v) FRAGMENT TYPE: internal  
1984  
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1986  
1987 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:  
1988  
1989 Cys Ser Asn Trp Val Trp Gln Ser Thr Gln Asp Val Phe Tyr Asn Gly  
1990 1 5 10 15  
1991  
1992 Ala Tyr Phe Val Ser Ser Gly Lys Tyr Glu Gly Gly Asn Ile Tyr Thr  
1993 20 25 30  
1994  
1995 Lys Lys Glu Ala Phe Asn Val Glu Asn Gly Asn Ala Thr Pro Gln Leu  
1996 35 40 45  
1997  
1998 Thr Lys Asn Ala Gly Val Leu Thr Cys Ser Leu Ser Lys Arg Cys  
1999 50 55 60  
2000  
2001 (2) INFORMATION FOR SEQ ID NO:66:  
2002  
2003 (i) SEQUENCE CHARACTERISTICS:  
2004 (A) LENGTH: 50 amino acids  
2005 (B) TYPE: amino acid  
2006 (D) TOPOLOGY: linear  
2007  
2008 (ii) MOLECULE TYPE: peptide  
2009  
2010 (v) FRAGMENT TYPE: internal  
2011  
2012  
2013  
2014 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:  
2015  
2016 Asp Asn Pro Ile Asp Ser Cys Trp Arg Gly Asp Ser Asn Trp Ala Gln  
2017 1 5 10 15  
2018  
2019 Asn Arg Met Lys Asp Ser Asn Trp Ala Gln Asn Arg Met Lys Leu Ala  
2020 20 25 30  
2021  
2022 Asp Cys Ala Val Gly Phe Gly Ser Ser Thr Met Gly Gly Lys Gly Gly  
2023 35 40 45  
2024  
2025 Asp Leu  
2026 50  
2027  
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## (2) INFORMATION FOR SEQ ID NO:67:

## (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 30 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(v) FRAGMENT TYPE: internal

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:67:

Lys	Met	Pro	Met	Tyr	Ile	Ala	Gly	Tyr	Lys	Thr	Phe	Asp	Gln	Arg	Gly
1				5				10					15		
Ala	Gln	Val	Tyr	Ile	Gly	Asn	Gly	Gly	Pro	Cys	Val	Phe	Ile		
		20					25					30			

## (2) INFORMATION FOR SEQ ID NO:68:

## (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 30 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(v) FRAGMENT TYPE: internal



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2081 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:68:

2082  
2083 Asp Ala Leu Thr Leu Arg Thr Ala Thr Asn Ile Trp Ile Asp His Asn  
2084 1 5 10 15  
2085  
2086 Ser Phe Ser Asn Ser Ser Asp Gly Leu Val Asp Val Thr Leu  
2087 20 25 30  
2088

2089 (2) INFORMATION FOR SEQ ID NO:69:

2090

2091 (i) SEQUENCE CHARACTERISTICS:

2092 (A) LENGTH: 50 amino acids

2093 (B) TYPE: amino acid

2094 (D) TOPOLOGY: linear

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2113 (ii) MOLECULE TYPE: peptide

2114

2115 (v) FRAGMENT TYPE: internal

2116

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2118

2119 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:69:

2120

2121 Leu Phe Phe Asn His His Lys Val Met Leu Leu Gly His Asp Asp Ala  
2122 1 5 10 15  
2123

2124 Tyr Ser Asp Asp Lys Ser Met Lys Val Thr Val Ala Phe Asn Gln Phe  
2125 20 25 30  
2126

2127 Gly Pro Asn Cys Gly Gln Arg Met Pro Arg Ala Arg Tyr Gly Leu Val  
2128 35 40 45  
2129

2130 His Val  
2131 50  
2132

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2133 (2) INFORMATION FOR SEQ ID NO:70:

2134

2135 (i) SEQUENCE CHARACTERISTICS:

2136 (A) LENGTH: 40 amino acids

2137 (B) TYPE: amino acid

2138 (D) TOPOLOGY: linear

2139

2140 (ii) MOLECULE TYPE: peptide

2141

2142 (v) FRAGMENT TYPE: internal

2143

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2145

2146 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:70

2147

2148

2149 Cys Ser Asn Trp Val Trp Gln Ser Thr Gln Asp Val Phe Tyr Asn Gly

2150 1 5 10 15

2151

2152 Ala Tyr Phe Val Ser Ser Gly Lys Tyr Glu Gly Gly Asn Ile Tyr Thr

2153 20 25 30

2154

2155 Lys Lys Glu Ala Phe Asn Val Glu

2156 35 40

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SEQUENCE VERIFICATION REPORT  
PATENT APPLICATION US/07/938,990A

DATE: 05/19/93  
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ORIGINAL TEXT

30 Wrong application Serial Number

(A) APPLICATION NUMBER: 07/938,990

PAGE: 1

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PATENT APPLICATION US/07/938,990A

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PATENT APPLICATION US/07/938,990A

DATE: 05/19/93  
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S4479

LINE ORIGINAL TEXT

CORRECTED TEXT

2146 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:70

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:70: